PATENT

## REMARKS/ARGUMENTS

Claims 1-3, 5-10, and 12-15 are pending in the application and are presented for further examination and allowance. Applicant, by this paper, amends claims 1, 8-9 and cancels original claims 4 and 11 without prejudice. Applicant adds new claims 14-15.

Discussion of Amendment to the Specification

Applicant amends paragraph [0090] to correct a typographic error in a reference character. No new matter is added.

Discussion of Objections to the Claims

Claim 8 was objected to as including a reference character not enclosed in parentheses. Applicant amends claim 8 to remove the reference character. Applicant believes that the amendment overcomes the claim objection and requests withdrawal of the objection to claim 8.

Discussion of Rejections Under 35 USC §102

Claims 1-13 were rejected under 35 USC §102(b) as allegedly anticipated by Hyuk Jun Oh et al. An Adaptive Channel Estimation Scheme for DS-CDMA Systems, VEHICLE TECHNOLOGY CONFERENCE, pages 2839-2843, XP010525099, Boston (hereinafter Oh). The Examiner contends that Oh describes every element of Applicant's claims.

Applicant, by this paper, cancels claims 4 and 11. Thus, the rejection of those claims is rendered moot in light of the claim cancellation.

Applicant amends claims 1 and 9. Support for the amendment can be found in Applicant's Specification, as filed. In particular, support can be found at paragraphs [0112] through [0115].

Claim 1, as amended, recites a method of improving the reception of a signal. The method includes "estimating the velocity of the WCD based on a level crossing rate, determined based on complete traversal of a hysteresis range bounded by an upper threshold and a lower threshold." This feature is not taught nor suggested by Oh.

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The Examiner contends that Oh discloses "that it is well known for using level crossing rate for estimating the velocity of the WCD." *Office Action*, page 3. Oh states that "[m]any literatures have shown to estimate velocity of mobile and corresponding $f_D$." *Oh*, at 2839 (*citations omitted*). Oh also states that "the performance of the method based on level crossing detector is severely degraded under AWGN." *Id.*, (*citation omitted*).

Applicant recognizes that using a level crossing threshold in a case of a noisy signal can result in the signal power traversing the level crossing threshold many times. *Specification*, at paragraph [0111]. Applicant describes a velocity estimator using level crossing hysteresis range bounded by a lower hysteresis threshold and an upper hysteresis threshold. *Id.*, at paragraph [0112]. The use of the hysteresis range allows the velocity estimator to determine an accurate level crossing rate in the presence of a noisy signal.

The feature of claim 1, "estimating the velocity of the WCD based on a level crossing rate, determined based on complete traversal of a hysteresis range bounded by an upper threshold and a lower threshold" therefore recites an embodiment of a velocity estimator not contemplated by Oh. Oh provides no teaching nor suggestion of velocity estimation using a hysteresis range. Indeed, as shown above, Oh does not even contemplate that a level crossing detector can be used in a velocity estimator under noisy conditions. Therefore, Oh provides no motivation to use a velocity estimator using level crossing to operate under noisy conditions.

Thus, claim 1 is believed to be allowable because Oh fails to teach or suggest every element of the claim in the manner set forth in the claim. Applicant respectfully requests allowance of claim 1.

Claim 9, as amended, includes "a velocity estimator that generates a velocity estimate based on a level crossing rate determined based on complete traversal of a hysteresis range bounded by an upper threshold and a lower threshold." Therefore, claim 9 is believed to be allowable at least for the same reasons discussed above in relation to claim 1. Applicant respectfully requests allowance of claim 9.

Claims 2-3, 5-8, 10, and 12-15 depend, either directly or indirectly, from one of claims 1 and 9 and are believed to be allowable at least for the reason that they depend from an

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allowable base claim. Applicant respectfully requests allowance of claims 2-3, 5-8, 10, and 12-15.

Discussion of New Claims

Applicant adds new claims 14 and 15. No new matter is added in the new claims. Support for the claims can be found in Applicant's Specification, as filed. In particular, support can be found at page 16, paragraph [0112].
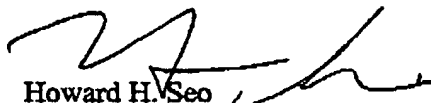
Applicant respectfully requests allowance of claims 14-15.

## CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 858-845-5235.

Respectfully submitted,

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